CLAIMS

We claim:

1. A composition, comprising a mixture of α-sulfofatty acid esters and having an enriched α-sulfofatty acid ester concentration.

2. The composition of claim 1, wherein the mixture is enriched for C_{16} α-sulfofatty acid esters.

3. The composition of claim 2, wherein the C_{16}-enriched α-sulfofatty acid ester concentration is at least about 25 weight percent C_{16}-enriched α-sulfofatty acid ester of the total α-sulfofatty acid esters.

4. The composition of claim 2, wherein the C_{16}-enriched α-sulfofatty acid ester concentration is at least about 35 weight percent C_{16}-enriched α-sulfofatty acid ester of the total α-sulfofatty acid esters.

5. The composition of claim 2, wherein the C_{16}-enriched α-sulfofatty acid ester concentration is at least about 50 weight percent C_{16}-enriched α-sulfofatty acid ester of the total α-sulfofatty acid esters.

6. The composition of claim 1, wherein the α-sulfofatty acid esters are derived from natural fats or oils.

7. The composition of claim 1, wherein the α-sulfofatty acid esters are methyl ester sulfonates.

8. The composition of claim 1, wherein the α-sulfofatty acid esters comprise a first and a second α-sulfofatty acid ester.

9. The composition of claim 8, wherein the first α-sulfofatty acid ester is prepared from palm kernel oil, cohune oil or coconut oil, and the second α-sulfofatty acid ester is prepared from palm stearine oil or tallow.

10. The composition of claim 8, wherein the second α-sulfofatty acid ester comprises predominately C_{16} chain lengths.

11. The composition of claim 8, wherein the first α-sulfofatty acid ester comprises C_8, C_{10}, C_{12}, C_{14}, C_{16}, and C_{18} chain lengths and the second α-sulfofatty acid esters comprises predominately C_{16} chain lengths.

12. A detergent composition, comprising at least about 15 weight percent of a mixture of α-sulfofatty acid esters and having a C_{16}-enriched α-sulfofatty acid ester concentration.

13. The detergent composition of claim 12, wherein the mixture comprises a first α-sulfofatty acid ester comprising C_8, C_{10}, C_{12}, C_{14}, C_{16}, and C_{18} chain lengths and a second α-sulfofatty acid ester comprising predominately C_{16} chain lengths.

14. The detergent composition of claim 13, wherein the second α-sulfofatty acid ester comprises at least about 35 weight percent C_{16} chain lengths.

15. The detergent composition of claim 13, wherein the second α-sulfofatty acid ester consists of C_{16} chain lengths.

16. The detergent composition of claim 12, wherein the mixture of sulfofatty acid esters comprises methyl ester sulfonates.

17. A detergent composition, comprising at least about 35 weight percent of α-sulfofatty acid esters, comprising:

a first α-sulfofatty acid ester comprising a mixture of different chain lengths; and

a second α-sulfofatty acid ester comprising at least about 35 weight C_{16} chain lengths.

18. A composition, comprising:

about 60 to about 40 weight percent methyl ester sulfonate comprising a mixture of chain lengths; and

about 40 to about 60 weight percent methyl ester sulfonate consisting essentially of C_{16} chain lengths.

19. A method for making a detergent composition, comprising:

providing a mixture of α-sulfofatty acid esters with a C_{16} enriched concentration; and

combining the mixture of α-sulfofatty acid esters with at least one other detergent component.

20. The method of claim 19, wherein the α-sulfofatty acid esters comprise methyl ester sulfonates.

21. The method of claim 20, including providing the mixture of α-sulfofatty acid esters by providing a methyl ester feedstock and then sulfonating the methyl ester feed to make the methyl ester sulfonates.

22. The method of claim 21, including sulfonating the methyl ester feedstock by reacting the methyl ester feedstock with gaseous SO_3.

23. The method of claim 21, wherein the methyl ester is prepared from a natural fat or oil.

24. The method of claim 21, further comprising enriching the C_{16} content of the methyl ester feedstock.

25. The method of claim 21, further comprising combining a natural fat or oil and a enriched natural fat or oil to form the methyl ester feedstock.

26. The method of claim 25, including combining about 60 to about 40 weight percent of the natural fat or oil with 40 to about 60 weight percent of the enriched natural fat or oil.

27. A method for making a detergent composition, comprising:

providing a methyl ester feedstock containing methyl esters having a C_{16} enriched concentration;

sulfonating the methyl ester feedstock to obtain methyl ester sulfonate; and

combining the methyl ester sulfonates with at least one other detergent component.

28. The method of claim 27, the methyl ester comprising a first natural fat or oil comprising a mixture of chain lengths and a second natural fat or oil comprising predominately C_{16} chain lengths.

29. The method of claim 27, further comprising enriching the C_{16} content of the second natural fat or oil by removing at least some of the non-C_{16} chain lengths.